population is now thought to be declining due primarily to overharvest. Harvest levels for the past 10–15 years (150–200 bears per year), which includes the legal harvest in Alaska and an illegal harvest in Chukoktka, Russia, are probably unsustainable. This harvest level is close to or greater than the unsustainable harvest levels experienced prior to 1972 (when approximately 178 bears were taken per year). Furthermore, this population has also been subject to unprecedented summer/autumn sea ice recessions in recent years, resulting in a redistribution of more polar bears to terrestrial areas in some years. Please see additional discussion of this population in the ''Current Population Status and Trend'' section of this document.

Comment 5: Interpretation of population declines is questionable due, in some cases, to the age of the data and in other cases the need for caution due to perceived biases in data collection.

Our response: We used the best available scientific information in assessing population status, recognizing the limitations of some of the information. This final rule benefits from new information on several populations (Obbard et al. 2007; Stirling et al. 2007; Regehr et al. 2007a, b) and additional analyses of the relationship between polar bear populations and sea ice habitat (Durner et al. 2007). New information on population status and trends is included in the ''Current Population Status and Trend'' section of this rule.

Comment 6: Polar bear health and fitness parameters do not provide reliable insights into population trends.

Our response: We recognize there are limits associated with direct correlations between body condition and population dynamics; however changes in body condition have been shown to affect reproduction and survival, which in turn can have population level effects. For example, the survival of polar bear cubs-of-the-year has been directly linked to their weight and the weight of their mothers, with lower weights resulting in reduced survival (Derocher and Stirling 1996; Stirling et al. 1999). Changes in body condition indices were documented in the Western Hudson Bay population before a statistically significant decline in that population was documented (Regehr et al. 2007a). Thus, changes in these indices serve as an ''early warning'' that may signal imminent population declines. New information from Rode et al. (2007) on the relationship between polar bear body condition indices and sea ice cover is also included in the ''Effects of Sea Ice Habitat Change on Polar Bears'' section of this final rule.

Comment 7: Polar bears have survived previous warming events and therefore can adapt to current climate changes.

Our response: We have addressed this issue by adding two sections to the final rule entitled ''Adaptation'' and ''Previous Warming Periods and Polar Bears'' under ''Summary of Factors Affecting the Polar Bear.'' To summarize these sections, we find that the long generation time of polar bears and the known physiological and physical characteristics of polar bears significantly constrain their ability to adapt through behavioral modification or natural selection to the unprecedentedly rapid loss of sea ice habitat that is occurring and is projected to continue throughout the species' range. Derocher et al. (2004, p. 163, 172) suggest that this rate of change will limit the ability of polar bears to respond and survive in large numbers. In addition, polar bears today experience multiple stressors (e.g., harvest, contaminants, oil and gas development, and additional interactions with humans) that were not present during historical warming periods. Thus, both the cumulative effects of multiple stressors and the rapid rate of climate change today create a unique and unprecedented challenge for present-day polar bears in comparison to historical warming events. See also above response to Comment PR4.

Comment 8: Polar bears will adapt and alternative food sources will provide nutrition in the future. There are many food resources that polar bears could exploit as alternate food sources.

Our response: New prey species could become available to polar bears in some parts of their range as climate change affects prey species distributions. However, polar bears are uniquely adapted to hunting on ice and need relatively large, stable seal populations to survive (Stirling and Øritsland 1995). The best available evidence indicates that ice-dependent seals (also called ''ice seals'') are the only species that would be accessible in sufficient abundance to meet the high energetic requirements of polar bears. Polar bears are not adapted to hunt in open water, therefore, predation on pelagic (open-ocean) seals, walruses, and whales, is not likely due to the energetic effort needed to catch them in an open-water environment. Other ice-associated seals, such as harp or hooded seals, may expand their ranges and provide a near-term source of supplemental nutrition in some areas. Over the long term, however, extensive periods of open water may ultimately stress seals as sea ice (summer feeding habitat) retreats further north from southern rookeries. We found no new evidence suggesting that seal species with expanding ranges will be able to compensate for the nutritional loss of ringed seals throughout the polar bear's current range. Terrestrial food sources (e.g., animal carcasses, birds, musk oxen, vegetation) are not likely to be reliably available in sufficient amounts to provide the caloric value necessary to sustain polar bears. For additional information on this subject, please see the expanded discussion of ''Adaptation'' under ''Summary of Factors Affecting the Polar Bear.''

Comment 9: Commenters expressed a variety of opinions on the determination of ''foreseeable future'' for the polar bear, suggesting factors such as the number and length of generations as well as the timeframe over which the threat can be analyzed be used to identify an appropriate timeframe.

Our response: ''Foreseeable future'' for purposes of listing under the Act is determined on the basis of the best available scientific data. In this rule, it is based on the timeframe over which the best available scientific data allow us to reliably assess the effect of threats—principally sea ice loss—on the polar bear, and is supported by species-specific factors, including the species' life history characteristics (generation time) and population dynamics. The timeframe over which the best available scientific data allow us to reliably assess the effect of threats on the species is the critical component for determining the foreseeable future. In the case of the polar bear, the key threat is loss of sea ice, the species' primary habitat. Available information, including results of the IPCC AR4, indicates that climate change projections over the next 40–50 years are more reliable than projections over the next 80–90 years. On the basis of our analysis, as reinforced by conclusions of the IPCC AR4, we have determined that climate changes projected within the next 40–50 years are more reliable than projections for the second half of the 21stcentury, for a number of reasons (see section on ''Projected Changes in Arctic Sea Ice'' for a detailed explanation). For this final rule, we have also identified three polar bear generations (adapted from the IUCN Red List criteria) or 45 years as an appropriate timeframe over which to assess the effects of threats on polar bear populations. This timeframe is long enough to take into account multi-generational population dynamics, natural variation inherent with populations, environmental and habitat